

# Navajo Abandoned Uranium Mine

## Site Screen Report

*This form is for use at the site of abandoned uranium mines (AUM) located on Navajo Nation lands. Applicable sites include all mine and mine features that have or have not undergone reclamation by the Navajo Abandoned Mine Lands Reclamation Program, including features, adits, pits and waste piles. Applicable sites also include all AUM sites listed in the USEPA CERCLIS database, all sites listed in the 2008 AUM GIS Report issued by USACOE and USEPA, all AUM sites on allotment lands associated with the Navajo Nation, and any and all AUM sites not listed in any database located on Navajo lands. Reconnaissance of any sites located on lands adjacent to Navajo lands that may be impacting Navajo lands will need to be coordinated with the authorities appropriate to those lands.*

*The purpose of the form is to ascertain the status and location of the identified AUM site, and record all immediate site information associated with the mine site. Decisions and recommendations on what additional steps are needed will be provided on a separate document.*

**Mine Name: Zhealy Tso, Pits**  
**Mine ID: 298**

**Navajo AUM Central Region**

**Prepared by:**

**Weston Solutions, Inc.**

**Contract: W91238-06-F-0083**

**20074.063.017.0020**

**August 2011**

**Part I Site Identification, Location and Status****Site Names and ID numbers as applicable****Mine ID:** 298**Map ID:** C32**CERCLIS:** NNN000909192**Navajo Abandoned Mine Land Reclamation Program:** None**Local name / Aliases:** MP-395**Chapter and local area:** Chinle**County:** Apache **State:** Arizona**Lat/Long:** 36.1850282144 N / -109.473060877 W**Nearby road and highway:** Indian Route 64 **Local Post Office:** Chinle, AZ**Surface Land Status: check one or more and provide ownership and contact information below**

**Tribal Trust Land** ☒  
**Private** ☐  
**Bureau of Land Mgmt** ☐  
**State** ☐

**Public lands** ☐  
**Tribal Fee Land** ☐  
**Allotment** ☐  
**Fee land** ☐

**Subsurface Mineral Rights:**

No information on subsurface mineral rights ownership was found in the EPA/AUM Database.

**Claim and operator information:**

The mine surface land status is classified as Tribal Trust Land. Historical documents identified the operator of the mine as Zhealy Tso and Arizona Giant Mining Company from 1955 to 1958. No additional historical ownership / lease information was identified in the EPA / AUM database.

**Number of residential structures within 200 feet of mine:** None

## Part II      Summary of Radiological Readings

**Mine ID: 298**

**Highest gamma radiation measurement:** 670,883 counts per minute (cpm)

**Background Average:** 11,062 cpm      **Two Times Background:** 22,124 cpm

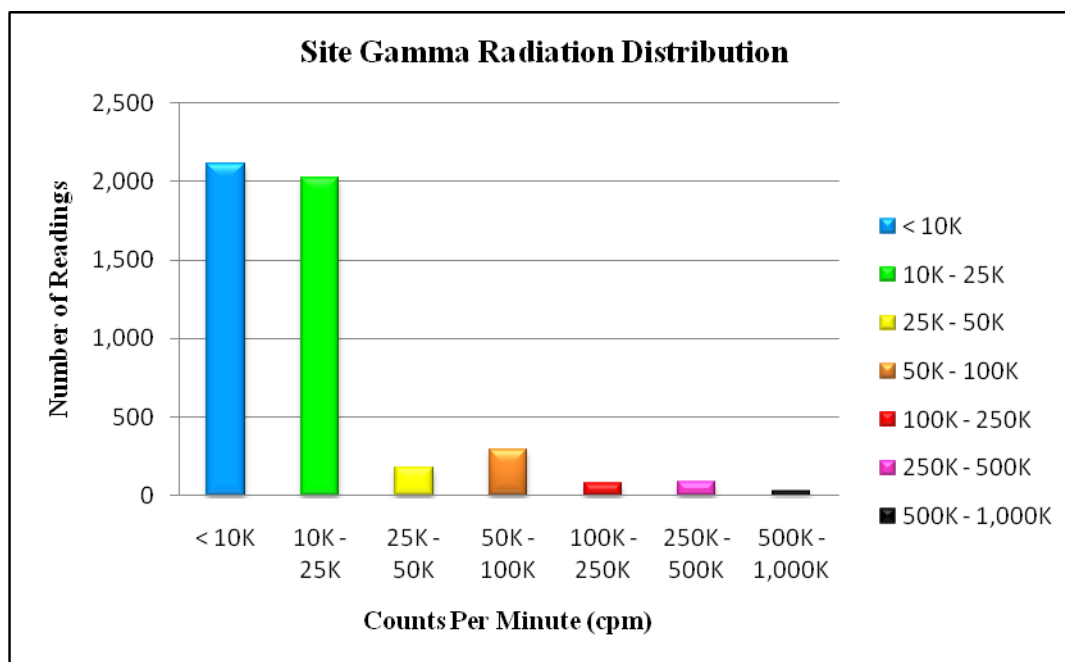
**Describe any other radiological measurements:**

A total of 4,808 gamma radiation measurements were collected from the mine site, ranging from 5,356 cpm to 670,883 cpm. Measurements collected in the vicinity of the waste rock were found at a maximum level of approximately 670,000 cpm. The measurements are represented in Figures 1 and 2.

### Distribution Chart and Statistics:

#### Site Gamma Radiation Statistics

Number of Readings	4,808
Minimum (cpm)	5,356
Maximum (cpm)	670,883
Mean (cpm)	27,214
Median (cpm)	10,540
Standard Deviation	68,885



### **Part III      Status of Reclamation and Mine Waste**

**Mine ID: 298**

**The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:**

**NAMLRP Status of the mine site: Reclaimed:** Unknown      **Waste Pile onsite:** No

**NAMLRP Project Number:** None

**NAMLRP Mine features:** 2 Rim Strip / Pits

---

**The following information was obtained from field observations collected during the 2011 site screening:**

**Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.**

**Observed reclamation work and status:**

**Adits:**

None observed

**Waste Piles:**

7-8 waste rock piles, approximately 20 - 40 yd<sup>3</sup> each

**Pits:**

None observed

**Shafts:**

None observed

**Other Debris and Mine Features:**

Boreholes in southern portion of site

**Part IV Site Observations and Environs****Observed Residential Structures (number and human habitation status of structures at the following distances from mine):**

**0 to 200 feet:** None observed

**200 feet to 0.25 mile:** None observed

**Observed Public or Commercial Structures (schools, clinics, Chapter Houses, places of business and any other structures used by members of the community at the following distances from the mine site):**

**0 to 200 feet:** None observed

**200 feet to 0.25 mile:** None observed

**Levels measured around the perimeter(s) of the identified structure(s):**

None

**Observed Water Sources (number and type of wells and surface water sources that are potentially used for human consumption at the following distances from the mine site):**

**0 to 0.25 miles:** Seasonal tributary to Canyon De Chelly approximately 75 ft W of site

**0.25 miles to 4 miles:** Canyon De Chelly approximately 1.75 mi S of site

**Sensitive Environments (all sensitive environments located within visible range of the mine site, including: wetlands, endangered species, habitats and approximate locations of sites that may be under protection of the government of the Navajo Nation):**

The site is located within Canyon De Chelly National Monument

**Known Site History (information from interviews with Chapter officials and residents and database review, includes: mine ownership, type of mining operation, period of operation, known amount of production, and any other information provided):**

The Zhealy Tso, Pits mine claim consists of an area of 20,080.48 m<sup>2</sup>. The mine surface land status is classified as Tribal Trust Land. Historical documents identified the operator of the mine as Zhealy Tso and Arizona Giant Mining Company from 1955 to 1958. No additional historical ownership / lease information was identified in the EPA / AUM database.

## **Part V          Response Action Summary**

### **Summary of Evaluation Factors:**

#### ***Accessibility:***

**Was the mine easily accessible to potential human activity?**

Yes

#### ***Radiological Measurements:***

**Were any gamma radiation measurements collected at the mine greater than two times the site-specific background levels?**

Yes

#### ***Waste Piles:***

**Were any unreclaimed waste piles observed at the mine with gamma radiation measurements greater than two times the site-specific background levels?**

Yes

#### ***Structures:***

**Were any structures observed within 200 feet of the mine?**

No

#### ***Potential Drinking Water Sources:***

**Were any potential drinking water sources observed within 4 miles of the mine?**

Yes

#### ***Reclamation:***

**Was the mine reported to be previously reclaimed, or did the mine appear to be reclaimed?**

Unknown

## Part VI      Photos



**Photo 1:** Mine Site #298; Northwestern portion of site



**Photo 2:** Mine Site #298; Site with Cottonwood Canyon in distance





**Photo 3:** Mine Site #298; Petrified wood



**Photo 4:** Mine Site #298; Western edge of site





**Photo 5:** Mine Site #298; Waste rock piles



**Photo 6:** Mine Site #298; Discolored rock



**Photo 7:** Mine Site #298; Waste rock piles



**Photo 8:** Mine Site #298; Borehole

**Part VII      Contacts Reports and Information**

Name: Eugene Esplain

Title or official role (if any): Navajo EPA Superfund Program

Telephone number: (928) 871-7331

Address: PO Box 2946, Window Rock, AZ 86515

Information provided: Lead Regulatory Agency

---

Name: \_\_\_\_\_

Title or official role (if any): \_\_\_\_\_

Telephone number: \_\_\_\_\_

Address: \_\_\_\_\_

Information provided: \_\_\_\_\_

---

Name: \_\_\_\_\_

Title or official role (if any): \_\_\_\_\_

Telephone number: \_\_\_\_\_

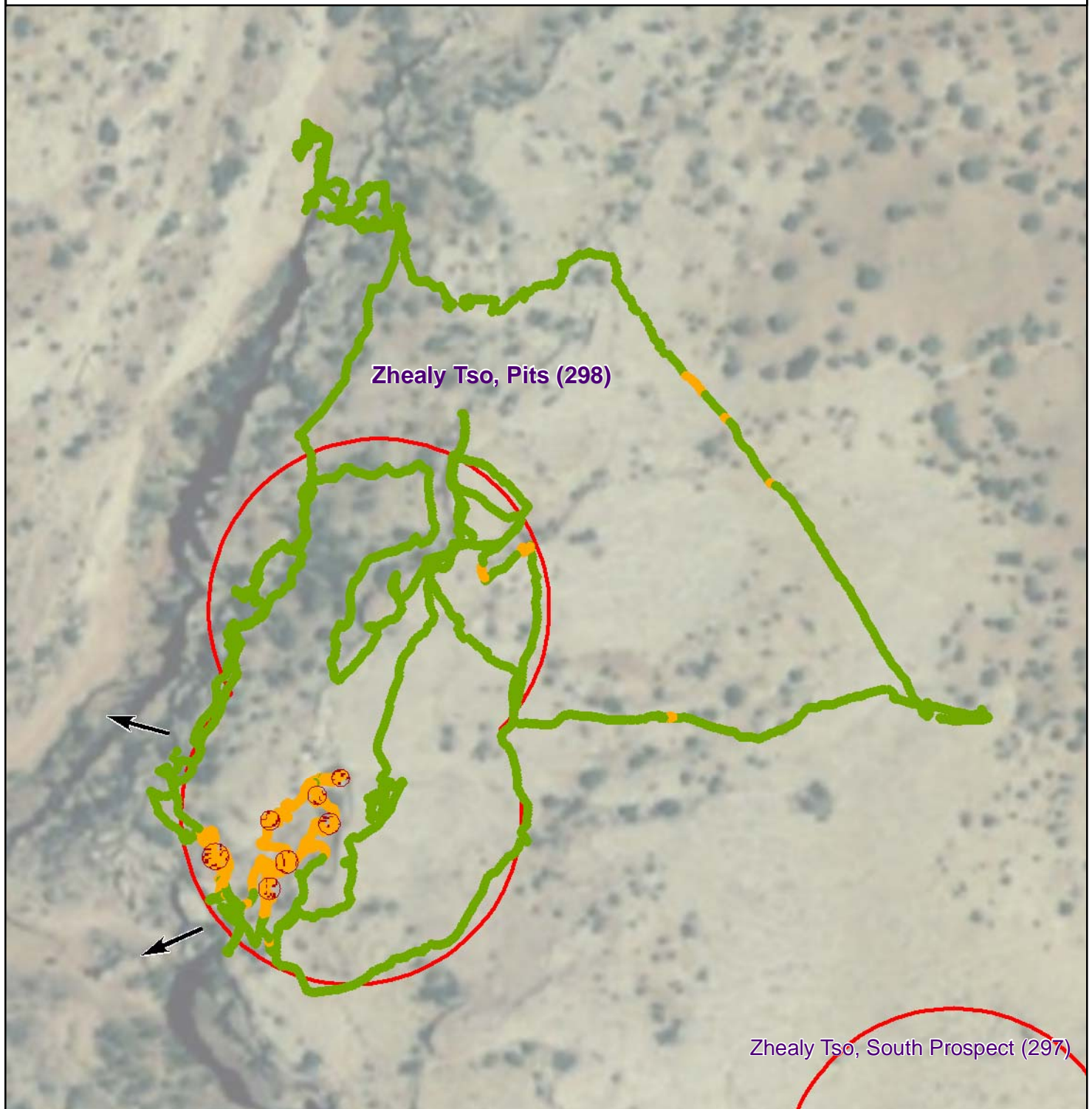
Address: \_\_\_\_\_

Information provided: \_\_\_\_\_

---



**Figure 1 - Gamma Radiation Measurements, Above Two Times Background  
Zhealy Tso, Pits (298)  
Chinle Chapter, Navajo Nation**



## Legend

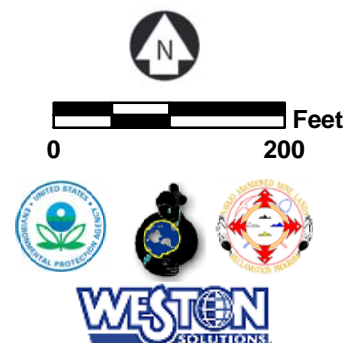
### Gamma Radiation Measurements

- < 2X Background
- > 2X Background

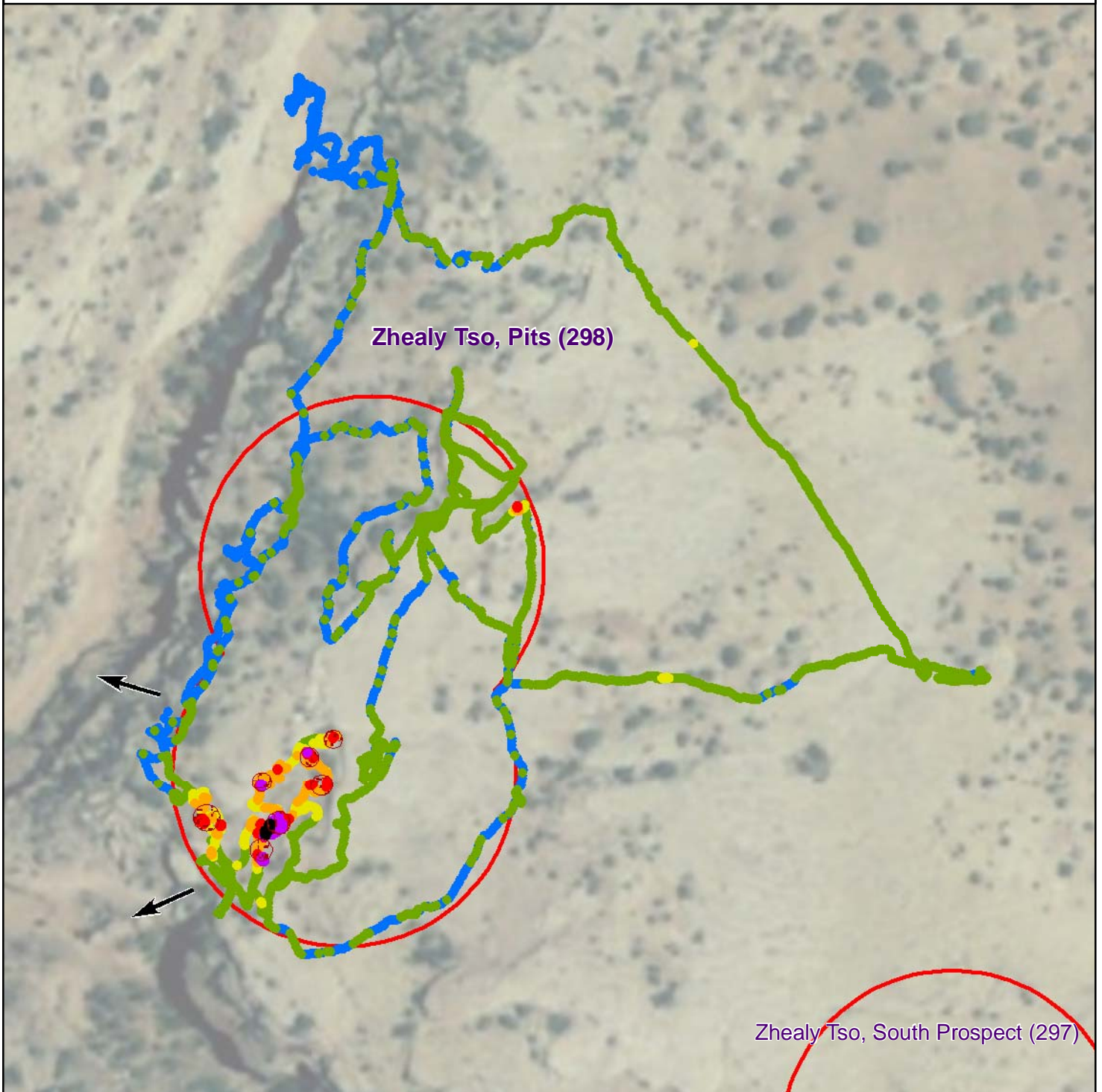
Measured as counts per minute (cpm)

Average background 11,062 cpm

- Mine Site Boundary
- General Slope Direction
- Observed Reclamation Feature
- Observed Waste Pile
- Observed Structure
- Steep Grade



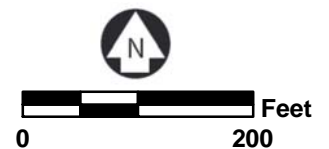
**Figure 2 - Gamma Radiation Measurements**  
**Zhealy Tso, Pits (298)**  
**Chinle Chapter, Navajo Nation**



**Gamma Radiation Measurements**

- 0 - 10,000 cpm
- 10,000 - 25,000 cpm
- 25,000 - 50,000 cpm
- 50,000 - 100,000 cpm
- 100,000 - 250,000 cpm
- 250,000 - 500,000 cpm
- 500,000 - 1,000,000 cpm

- Mine Site Boundary
- General Slope Direction
- Observed Reclamation Feature
- Observed Waste Pile
- Observed Structure
- Steep Grade



Measured as counts per minute (cpm)      Average background 11,062 cpm